

ABSTRACT

The present invention generally relates to a multi-layered structure which for a given external geometry a section of interest may be integrally reinforced by varying the relative proportions of the layers in that section. That is, the layers making up the structure may have varying relative proportions to the structure's overall thickness between two or more positions while the structure maintains a constant thickness between the positions. By varying the relative proportions of the structure's layers, the mechanical properties of the structure may be selectively altered from a first position to a second position without altering the structure's external profile. This is especially desirable in composite sandwich structures used in aerospace applications which often require additional reinforcement at structural interfaces. By adjusting the relative proportions of the composite sandwich structure's layers, one or more structurally enhanced sections may be created for structural interfaces without altering the structure's profile.